PATUXENT RIVER NAVAL AIR STATION
LEXINGTON PARK, MARYLAND

Engineering Field Division/Activity:	EFACHES
Major Claimant:	COMNAVAIRSYSCOM
Size:	7,120 Acres
Funding to Date:	$10,889,000
Estimated Funding to Complete:	$154,231,000
Base Mission:	Maintains and operates facilities in support of testing and evaluating Naval aircraft systems
Contaminants:	Heavy metals, inorganic and organic compounds, pesticides, POLs, solvents

Number of Sites:		**Relative Risk Ranking of Sites:**			
CERCLA:	51	**High:**	28	**Not Evaluated:**	2
RCRA Corrective Action:	0	**Medium:**	21	**Response Complete:**	1
RCRA UST:	6	**Low:**	5	**Total Sites:**	57
Total Sites:	57				

NPL

EXECUTIVE SUMMARY

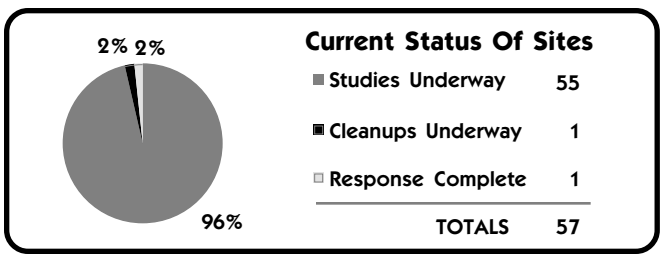
The Patuxent River Naval Air Station (NAS) is located in St. Mary's County, Maryland, approximately 65 miles southeast of Washington, D.C. The station is situated on a broad headland at the confluence of the Patuxent River and Chesapeake Bay. The unincorporated community of Lexington Park lies immediately to the southwest of the station. Basic operations are the testing and evaluation of aircraft weapons systems, fixed-wing antisubmarine aircraft and experimental and production fixed-wing attack, fighter and other aircraft; intermediate aircraft maintenance; operation, maintenance and improvement of existing facilities, grounds and utility plants and systems; and procurement and distribution of fuel, oil, chemicals and other required supplies. Typical air station operations that contributed to contaminated sites of the facility include machine shops, foundry, coatings and paint shops, paint stripping, plating shops, power plants, wastewater treatment plants, fire fighting, landfill disposal and storage of supplies, materials, fuels and limited ordnance. Current operations include pollution prevention technologies to prevent further contamination. Primary contaminants of concern are pesticides, solvents, the chemical additive PCB and metals that have contaminated soil, groundwater, sediment and surface water. Groundwater contamination at the landfills and high concentrations of pesticides in the soil and sediment at the Pest Control Shop caused NAS to be placed on the National Priorities List (NPL) in 1994.

St. Mary's County is rural in character and sparsely populated. Land use patterns in St. Mary's County are largely residential, agricultural and undeveloped open space. There are several small streams and ponds located on NAS. There is a fairly extensive storm sewer system that is composed of 18 drainage basins with discharge points on the Patuxent River, the Chesapeake Bay and various ponds and small lakes. The storm water collection system consists of reinforced concrete storm sewers receiving surface water and groundwater seepage from a network of shallow roadside ditches, natural streams, culverts, subdrains, storm sewers and laterals. Groundwater beneath NAS occurs in three principle zones: the upper-most water table aquifer and two confined aquifers. One of the confined aquifers is a major source of public water supply for southern Maryland; the other aquifer is the principle source of potable and industrial water for NAS.

A Technical Review Committee (TRC) was formed in FY90. For greater community involvement, the TRC was converted to a Restoration Advisory Board (RAB) in September 1994 and meets quarterly. The RAB has several active members composed of Navy employees, state and federal regulators and local citizens. A Community Relations Plan (CRP) was first published in FY91 and an Information Repository has been established at the local library.

Currently, 55 sites are in a study phase of which 51 are CERCLA sites. One CERCLA site is in a Site Inspection (SI) phase and ten sites are in a Remedial Investigation/Feasibility Study (RI/FS) phase. One RCRA Underground Storage Tank (UST) site is in the Corrective Action Plan (CAP) phase and a Corrective Measures Implementation (CMI) is underway at one UST site. Two Interim Remedial Actions (IRAs) are underway at two UST sites. The remaining 43 sites under study are awaiting funding to complete the study phase. The response is complete at one UST site.

A major success in the cleanup program at NAS Patuxent River involves the completion of three removal actions. At Site 1, Fishing Point Landfill, Shoreline Erosion Project was required due to landfill eroding into the Patuxent River and the Chesapeake Bay. The shoreline was recaptured with beach fill and a series of breakwaters was installed to dissipate the wave action. At Site 17, Pest Control Shop and Site 28, Transformer Storage Area, a removal action to remove contaminated soil was done.



PATUXENT RIVER NAS
RELEVANT ISSUES

ENVIRONMENTAL RISK

HYDROGEOLOGY - Geographically, NAS is located within the Coastal Plain province, a seaward sloping, moderately dissected to flat plain. In the area of NAS, the Patuxent River is actually an estuary system. The station is underlain by a thick sequence of sand, clay and gravel. Sediments, which overlie hard, dense crystalline rocks, are about 2,500 feet thick. There are several small streams and ponds located on the base. Contaminant migration pathways at NAS include surface runoff and groundwater movement to the Patuxent River, the Chesapeake Bay, and small streams and ponds. The vast majority of the sites are within the lowlands area of NAS, which contains a fairly well developed storm water drainage system. The potential for pollution migration offsite via surface water depends largely on the proximity of the waste disposal site to a stream channel and the amount of runoff generated per storm event. Groundwater beneath NAS occurs in three principle zones. The uppermost zone is the water table aquifer, whose elevation varies from a high of approximately 80 feet above mean sea level in the southwest portion of the base to zero feet along the coastal areas. Flow in the water table aquifer is generally from the southwest to the northeast. Groundwater also occurs in two confined aquifers, which are separated from the water table aquifer by thick accumulations of fairly impermeable silts, clays and marls. The uppermost confined aquifer is a major source of public water supply for southern Maryland; the other aquifer is the principle source of potable and industrial water for NAS. Of the three major aquifers beneath NAS, the water table aquifer is most susceptible to contamination since most surface soils at NAS are fairly permeable. This condition provides a potential pathway for leachate originating from various NAS waste disposal sites to migrate downward until it intersects the water table aquifer. Because potable water is obtained from the deep confined aquifers, there is minimal potential for waste disposal sites to contaminate NAS or surrounding community water supplies. Because of the thick sequence of clays and silt in the Chesapeake group, there is very little potential that contaminants will migrate vertically. Additionally, the thick clays and marls that separate the aquifers from one another will also act as an effective barrier to vertical migration of contaminants.

NATURAL RESOURCES - NAS has a draft Wildlife Management Plan that identifies typical species. A Forest Management Plan was developed in 1981. Food plots ranging in size from one-tenth to two acres are maintained for wildlife. Twenty-one areas on the station have been designated for hunting on a seasonal basis. NAS ponds and creeks, as well as the Patuxent River and Chesapeake Bay, support a wide variety of aquatic animals and plants. Five man-made ponds on station are used for recreational fishing. Saltwater fishing takes place along the northern shore of NAS. Oyster beds are located in Harper and Parsons Creeks and are worked in winter months. The Wetland Management Plan, as outlined in the draft Wildlife Management Plan calls for the maintenance of existing wetlands and the creation of new ones. Two endangered species exist in the vicinity of NAS. These are the shortnose sturgeon and the bald eagle These species should not be affected by the sites identified at NAS. The State of Maryland has designated some species that occur in the area as rare over a broad range and may become endangered. These species are the great blue heron, red-shouldered hawk, osprey and the eastern bluebird.

RISK - For the DOD Relative Risk Ranking System, 54 of the 57 sites have been ranked. Twenty-eight of these sites were ranked as high primarily due to known groundwater and soil contamination. Migration pathways have been identified and include nearby wetlands and ecological resources.

The Agency for Toxic Substance and Disease Register (ATSDR) performed a public health assessment for the installation in September 1995.

RESTORATION PROJECTS - At Site 1, Fishing Point Landfill, the Shoreline Erosion Project, stabilized and recaptured shoreline and installed a breakwater system to dissipate wave action. This restored the shoreline while also reducing the potential for contaminant migration.

REGULATORY ISSUES

NATIONAL PRIORITIES LIST - NAS was listed on the National Priority List (NPL) on 31 May 1994 with a Hazard Ranking System (HRS) score of 36.87. Contamination was detected in the groundwater at the Fishing Point Landfill, Site 1 and the Current and Former Sanitary Landfill, Site 11. High concentrations of pesticides were found in the soil and sediment of the Pest Control Shop, Site 17.

LEGAL AGREEMENTS - A Federal Facility Agreement (FFA) has not been signed yet but is awaiting direction from CNO/NAVFAC. The Site Management Plan (SMP) is being updated to include all of the IR sites.

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in FY90; it meets quarterly. The first Restoration Advisory Board (RAB) meeting was 26 October 1994. The issues discussed were the components of the Installation Restoration Program (IRP), the purpose of the RAB and the Engineering Evaluation/Cost Analysis (EE/CA) for Sites 6, 17 and 24.

COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in April 1991. NAS had one public meeting for the proposed CRP/Record of Decision (ROD) requirement, for Site 11, Former Sanitary Landfill in September 1995.

INFORMATION REPOSITORY - An Administrative Record (the official file) was established in FY95 and is maintained by the Navy. The information in the Administrative Record was placed in two Information Repositories, established in FY95, for public access. They are located at the Lexington Park Public Library and the Public Affairs Office on the NAS. The Information Repositories are updated regularly by the Navy.

PATUXENT RIVER NAS
HISTORICAL PROGRESS

FY84

Sites 1-31 - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA), was completed. It identified 31 sites at NAS. Fourteen sites (Sites 1, 2, 4, 6-8, 11, 15, 17, 23-25, 28 and 29) were recommended for further investigation. The remainder of the sites were recommended for no further action.

FY85

Sites 1, 2, 4, 6, 11, 17, 23, 24, 28 and 29 - The Remedial Investigation/ Feasibility Study (RI/FS) activities were initiated. Both shallow and deep monitoring wells were installed; soil borings were taken; and environmental sampling (water, soil, sediment and fish) and hydrogeologic testing was conducted.
Sites 7 and 8 - A Confirmation Study (CS), equivalent to a Site Investigation (SI), was completed.

FY86

Site 9 - An Interim Remedial Action (IRA) (drum removal) was completed.

FY87

UST 2 - Initial Site Characterization (ISC) and a Corrective Action Plan (CAP) were completed in FY87. The CAP recommended no further action at the site and the site has been closed.

FY88

SWMUs - A RCRA Facility Assessment (RFA) was conducted. One hundred sites were identified as possible Solid Waste Management Units (SWMUs). Some of these sites are being investigated under RCRA Closure plans. However, none of the Defense Environmental Restoration Account (DERA) funded sites are being covered under the RCRA Corrective Action (CA) program. All DERA funded sites are being handled under CERCLA or the RCRA Underground Storage Tank (UST) program.

FY89

UST 1 - An ISC was completed.

FY91

Sites 1, 2, 4, 6, 11, 15, 17, 23-25, 28 and 29 - A Confirmation Study (CS) was completed in FY91. Sites 15 and 25 were recommended for no further action. Sites 6-9 were recommended for interim remedial or removal actions. Sites 1, 2, 4, 6, 11, 17, 23, 24, 28 and 29 were recommended for a Remedial Investigation (RI). Sites 7 and 8 were later moved to the UST program and are now part of UST 1.
Site 10 - An IRA for drums and ordnance removal and ordnance sweep to remove remaining live ordnance was completed
Site 17 - An IRA (pesticide-contaminated soil removal) was completed.
Site 28 - An IRA (PCB-contaminated soil removal) was completed.
UST 3 - The ISC and a CAP were completed. Implementation of the Corrective Measures Plan (CMP), which includes groundwater treatment, was initiated and is expected to continue until FY96.

FY92

A draft RI report was completed in February 1992 and submitted to the State of Maryland and EPA for review. The State requested that additional field work be conducted.
USTs 4 and 5 - The ISCs were completed.

FY93

Site 34 - Site was identified during a geophysical survey and was added to the program. A PA was completed in FY93.
UST 1 - Groundwater treatment was initiated as an interim measure.
UST 4 - A CAP was completed. Implementation of the CMP, which includes groundwater treatment, was initiated and is expected to continue until FY96.
UST 6 - An ISC was completed.

FY94

Site 1 - An IRA (shoreline stabilization) was completed.
Sites 9 and 34 - An SI was completed in April 1994. Both sites were recommended for an RI.
Sites 35 and 43-46 - A PA was completed.
UST 5 - A CAP was completed in November 1993; soil removal was initiated in August 1994.

PROGRESS DURING FISCAL YEAR 1995

FY95

Sites 35 and 47-52 - PAs were completed.
USTs 1 and 5 - An IRA is underway and expected to be completed in FY96.

UST 3 - Implementation of Corrective Measures began and is expected to be completed FY96.

PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

Sites 3, 31, 35-39 and 47 - SIs are expected to start.
Sites 6 and 17 - Design for IRA is expected to start.
UST 1 - Implementation of the Corrective Measure Design is expected to be completed and an Interim measures to be completed.
UST 5 - Soil Removal action is expected to be completed.
UST 6 - Corrective Action Plan expected to be completed.

FY97

Sites 1, 2, 4-6, 9, 11, 12, 17, 23, 24, 27-29 and 34 - An RI/FS is scheduled to be completed.
Site 31 - An SI is expected to be completed.
Sites 6, 11, 17 and 24 - Scheduled IRAs are expected to be completed.
UST 4 - Implementation of the Corrective Measure is expected to be completed.
UST 6 - Implementation of the Corrective Measures and two Interim Actions to be completed.

PATUXENT RIVER NAS
PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	44	7						
SI	15			1	1	3	6	21
RI/FS				15			2	31
RD						5	5	38
RA							4	46
IRA	5(6)			4(4)				
RC	1						1	49
Cumulative Response Complete	2%						4%	100%
UST	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
ISC	6							
INV								
CAP	4		1					1
DES			1					
IMP			2	2				2
IRA	1(1)		2(2)	1(2)				
RC				3				3
Cumulative Response Complete				50%				100%